

IN THE CLAIMS:

1 1-8 (CANCELLED)

1 9. (ORIGINAL) An apparatus for improving utilization of a data link coupled to a net-
2 work comprising:

3 one or more queues configured to hold data;

4 a queue manager coupled to the queues and configured to dequeue the data from
5 the queues and transfer the data onto the data link;

6 auxiliary queue logic coupled to the queue manager and configured to generate
7 scores for one or more of the queues, the auxiliary queue logic further configured to
8 maintain a scorecard of the generated scores and notify the queue manager of a queue
9 associated with the highest score in the scorecard to cause the queue manager to dequeue
10 data from the queue when the link becomes idle.

1 10. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 9 comprising:

2 calendar queue logic coupled to the auxiliary queue logic and configured
3 to notify the auxiliary queue logic when the data link becomes idle.

1 11. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 9 comprising:

2 a scheduler coupled to the auxiliary queue logic and configured to maintain at-
3 tribute information associated with the queues.

1 12. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 11 wherein the

2 auxiliary queue logic is configured to acquire the attribute information associated with
3 the queues from the scheduler and use the attribute information to generate scores for the
4 queues.

1 13. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 12 wherein the
2 attribute information includes rate information associated with the queues.

1 14. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 13 wherein the
2 rate information includes an excess rate component.

1 15. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 11 wherein the
2 scorecard is a data structure comprising one or more entries, and wherein each entry con-
3 tains a score field configured to hold a generated score and a queue identifier (QID) field
4 configured to hold a QID associated with a queue.

1 16. (CURRENTLY AMENDED) ~~An~~The apparatus as defined in claim 15 wherein the
2 auxiliary queue logic is configured to acquire attribute information and a QID associated
3 with a queue, generate a score associated with the queue using the attribute information,
4 and place the score and QID in the score and QID fields, respectively, of an entry con-
5 tained in the scorecard.

1 17-20. (CANCELLED)

1 21. (NEW) A method for improving utilization of a data link coupled to a network com-
2 prising:

3 holding data in one or more queues coupled to a queue manager;
4 generating scores for the one or more of the queues;
5 maintaining a scorecard of the generated scores;
6 determining that a data link is idle; and
7 dequeuing, by the queue manager, data from a queue associated with a highest
8 score in the scorecard, and transferring the data onto the data link, in response to deter-
9 mining that the data link has become idle.

- 1 22. (NEW) The method as defined in claim 21 further comprising:
2 acquiring attribute information associated with the one or more queues; and
3 using the attribute information to generate the scores for the one or more queues.
- 1 23. (NEW) The method as defined in claim 22 wherein the attribute information includes
2 rate information associated with the queues.
- 1 24. (NEW) The method as defined in claim 23 wherein the rate information includes an
2 excess rate component.
- 1 25. (NEW) The method as defined in claim 21 as defined in claim 11 wherein the score-
2 card is a data structure comprising one or more entries, and wherein each entry contains a
3 score field configured to hold a generated score and a queue identifier (QID) field con-
4 figured to hold a QID associated with a queue.
- 1 26. (NEW) The method as defined in claim 25 further comprising:
2 acquiring attribute information and a QID associated with a queue;
3 generating a score associated with the queue using the attribute information; and
4 placing the score and QID in the score and QID fields, respectively, of an entry
5 contained in the scorecard.
- 1 27. (NEW) The method as defined in claim 21 further comprising:
2 determining the scorecard is full;
3 in response to the scorecard being full, determining if a generated score is greater
4 than a score contained in the scorecard; and
5 if so, replacing a lowest score in the scorecard with the generated score.
- 1 28. (NEW) The method as defined in claim 21 further comprising:

2 determining the scorecard is not full; and
3 in response to the scorecard being not full, adding a generated score to the score-
4 card.

1 29. (NEW) An apparatus for improving utilization of a data link coupled to a network
2 comprising:
3 one or more queues configured to hold data;
4 means for generating scores for the one or more of the queues;
5 means for maintaining a scorecard of the generated scores;
6 means for determining that a data link is idle; and
7 means for dequeuing data from a queue associated with a highest score in the
8 scorecard, and transferring the data onto the data link, in response to determining that the
9 data link has become idle.

1 30. (NEW) The apparatus as defined in claim 29 further comprising:
2 means for acquiring attribute information associated with the one or more queues;
3 and
4 means for using the attribute information to generate the scores for the one or
5 more queues.

1 31. (NEW) The apparatus as defined in claim 30 wherein the attribute information in-
2 cludes an excess rate component.

1 32. (NEW) The apparatus as defined in claim 29 further comprising:
2 means for determining if a generated score is greater than a score contained in the
3 scorecard; and
4 means for replacing a lowest score in the scorecard with the generated score if the
5 generated score is greater than a score contained in the scorecard.